

What is claimed is:

1. A hydrodynamic bearing system, comprising:
a one-piece thrust-plate/shaft component, further comprising a shaft portion and a thrust plate portion,
wherein said one-piece thrust-plate/shaft component is formed by powder injection molding process.
2. The hydrodynamic bearing system according to Claim 1 further comprising a sleeve, said sleeve having a cylindrical inner bore, wherein said one-piece thrust-plate/shaft component is positioned within said cylindrical inner bore of said sleeve.
3. The hydrodynamic bearing system according to Claim 1, wherein said thrust plate portion of said one-piece thrust-plate/shaft component is positioned at a bottom end of said shaft portion.
4. The hydrodynamic bearing system according to Claim 3, wherein said thrust plate portion of said one-piece thrust-plate/shaft component is a thin thrust plate.
5. The hydrodynamic bearing system according to Claim 1, wherein said thrust plate portion of said one-piece thrust-plate/shaft component is positioned at a midsection of said shaft portion.

6. The hydrodynamic bearing system according to Claim 1, wherein said one-piece thrust-plate/shaft component is a rotating element of said hydrodynamic bearing system.

7. The hydrodynamic bearing system according to Claim 1, wherein said one-piece thrust-plate/shaft component is a fixed element of said hydrodynamic bearing system.

8. A spindle motor with a hydrodynamic bearing system, comprising:
a one-piece thrust-plate/shaft component, further comprising a shaft portion and a thrust plate portion,
wherein said one-piece thrust-plate/shaft component is formed by powder injection molding process.

9. The spindle motor according to Claim 8 further comprising a sleeve, said sleeve having a cylindrical inner bore, wherein said one-piece thrust-plate/shaft component is positioned within said cylindrical inner bore of said sleeve.

10. The spindle motor according to Claim 8, wherein said thrust plate portion of said one-piece thrust-plate/shaft component is positioned at a bottom end of said shaft portion.

11. The spindle motor according to Claim 10, wherein said thrust plate portion of said one-piece thrust-plate/shaft component is a thin thrust plate.

12. The spindle motor according to Claim 8, wherein said thrust plate portion of said one-piece thrust-plate/shaft component is positioned at a midsection of said shaft portion.

13. The spindle motor according to Claim 8, wherein said one-piece thrust-plate/shaft component is a rotating element of said hydrodynamic bearing system.

14. The spindle motor according to Claim 8, wherein said one-piece thrust-plate/shaft component is a fixed element of said hydrodynamic bearing system.

15. A method of manufacturing a hydrodynamic bearing system, comprising the steps of:

crushing raw steel material into fine powder;

mixing and kneading a binder with the fine powder;

pressure injection molding a one-piece thrust-plate/shaft component having a thrust plate portion and a shaft portion;

grinding and lopping said one-piece thrust-plate/shaft component to achieve desired characteristics of said thrust plate portion and said shaft portion; and

assembling said one-piece thrust-plate/shaft component into said hydrodynamic bearing system without destroying said achieved desired characteristics.

16. The method of manufacturing a hydrodynamic bearing system according to Claim 15, wherein said desired characteristic is perpendicularity.

17. The method of manufacturing a hydrodynamic bearing system according to Claim 15, wherein said desired characteristic is concentricity.